BS Chemistry Degree Requirements

BS Chemistry (ACS Certified Degree)
College and University Requirements

a. English Composition (2 courses)	6
b. Arts and Humanities	8
c. First Year Seminar (1 course)	1-4
d. Social Sciences	8
Total	**23-26**

Common Core

Select one of the following:		8
CHM 040 & CHM 041	Concepts, Models and Experiments I and II	
CHM 030 & CHM 031	Introduction to Chemical Principles and Chemical Equilibria in Aqueous Systems	
CHM 110 & CHM 111	Organic Chemistry I and Organic Chemistry Laboratory I	4
CHM 112 & CHM 113	Organic Chemistry II and Organic Chemistry Laboratory II	4
CHM 332	Analytical Chemistry	3
See Concentrations - Physical chemistry		3-8
CHM 201	Technical Writing [1]	2
CHM 301	Chemistry Seminar [2]	1
CHM 307	Advanced Inorganic Chemistry	3

Collateral Requirement - Path A

MATH 021	Calculus I	4
MATH 022	Calculus II	4
MATH 023	Calculus III	4
MATH 205	Linear Methods	3
PHY 011 & PHY 012	Introductory Physics I and Introductory Physics Laboratory I	5
PHY 021 & PHY 022	Introductory Physics II and Introductory Physics Laboratory II	5
ENGR 010	Applied Engineering Computer Methods	2
or CSE 002	Fundamentals of Programming	

Specialization Courses

CHM 334	Advanced Chemistry Laboratory I	3
CHM 335	Advanced Chemistry Laboratory II	3
CHM 341	Molecular Structure, Bonding and Dynamics	3
CHM 342	Thermodynamics & Kinetics	3
CHM 343	Physical Chemistry Laboratory	2
CHM 371	Elements of Biochemistry I	1-3

Advanced Chemistry Elective Requirement

Select one of the following:		3
CHM 358	Advanced Organic Chemistry	
CHM 372	Elements of Biochemistry II	
CHM 376	Advanced Research Chemistry Laboratory	
CHM 391	Colloid and Surface Chemistry	
CHE 392	Introduction to Polymer Science	
CHM 393	Physical Polymer Science	
CHM 394	Organic Polymer Science I	
PHY 363	Physics of Solids	
Total Credits		**73-80**

[1] Other writing intensive courses may be substituted with the approval of the advisor but any substitute course should have a science focus.

[2] CHM 301 may be substituted by any course having a major presentation component with the approval of the major advisor.

[3] MATH 012 may be substituted by any statistics course.

B.S. Chemistry - Analytical/Physical Concentration

College and University Requirements

a. English Composition (2 courses)		6
b. Arts and Humanities		8
c. First Year Seminar (1 course)		1-4
d. Social Sciences		8
Total		**23-26**

Common Core

Select one of the following		8
CHM 040 & CHM 041	Concepts, Models and Experiments I and II	
CHM 030 & CHM 031	Introduction to Chemical Principles and Chemical Equilibria in Aqueous Systems	
CHM 110 & CHM 111	Organic Chemistry I and Organic Chemistry Laboratory I	4
CHM 112 & CHM 113	Organic Chemistry II and Organic Chemistry Laboratory II	4
CHM 332	Analytical Chemistry	3
See Concentrations - Physical chemistry		3-8
CHM 201	Technical Writing [1]	2
CHM 301	Chemistry Seminar [2]	1
CHM 307	Advanced Inorganic Chemistry	3

Collateral Requirement - Path A

MATH 021	Calculus I	4
MATH 022	Calculus II	4
MATH 023	Calculus III	4
MATH 205	Linear Methods	3
PHY 011 & PHY 012	Introductory Physics I and Laboratory I	5
PHY 021 & PHY 022	Introductory Physics II and Laboratory II	5
ENGR 010	Applied Engineering Computer Methods	2
or CSE 002	Fundamentals of Programming	

Specialization Courses

CHM 334	Advanced Chemistry Laboratory I	3
CHM 335	Advanced Chemistry Laboratory II	3
CHM 341	Molecular Structure, Bonding and Dynamics	3
CHM 342	Thermodynamics & Kinetics	3
CHM 343	Physical Chemistry Laboratory	2
Total Credits		**69-74**

B.S. Chemistry - Polymers Concentration

College and University Requirements

a. English Composition (2 courses)	6
b. Arts and Humanities	8
c. First Year Seminar (1 course)	1-4
d. Social Sciences	8
Total	**23-26**

Common Core

Select one of the following:		8
CHM 040 & CHM 041	Concepts, Models and Experiments I and II	
CHM 030 & CHM 031	Introduction to Chemical Principles and Chemical Equilibria in Aqueous Systems	
CHM 110 & CHM 111	Organic Chemistry I and Organic Chemistry Laboratory I	4
CHM 112 & CHM 113	Organic Chemistry II and Organic Chemistry Laboratory II	4
CHM 332	Analytical Chemistry	3
See Concentrations - Physical chemistry		3-8
CHM 201	Technical Writing [1]	2
CHM 301	Chemistry Seminar [2]	1
CHM 307	Advanced Inorganic Chemistry	3

Collateral Requirement - Path A

MATH 021	Calculus I	4
MATH 022	Calculus II	4
MATH 023	Calculus III	4
MATH 205	Linear Methods	3
PHY 011 & PHY 012	Introductory Physics I and Laboratory I	5
PHY 021 & PHY 022	Introductory Physics II and Laboratory II	5
ENGR 010	Applied Engineering Computer Methods	2
or CSE 002	Fundamentals of Programming	

Specialization Courses

CHM 341	Molecular Structure, Bonding and Dynamics	3
CHM 342	Thermodynamics & Kinetics	3
CHM 343	Physical Chemistry Laboratory	2
CHM 388	Polymer Synthesis and Characterization Laboratory	3
CHM 393	Physical Polymer Science	3
CHM 393	Physical Polymer Science	3
CHM 394	Organic Polymer Science I	3
Total Credits		**75-80**

B.S. Chemistry - Materials Concentration

College and University Requirements		
a. English Composition (2 courses)		6
b. Arts and Humanities		8
c. First Year Seminar (1 course)		1-4
d. Social Sciences		8
Total		**23-26**
Common Core		
Select one of the following:		8
CHM 040 & CHM 041	Concepts, Models and Experiments I &II	
CHM 030 & CHM 031	Introduction to Chemical Principles and Chemical Equilibria in Aqueous Systems	
CHM 110 & CHM 111	Organic Chemistry I and Organic Chemistry Laboratory I	4
CHM 112 & CHM 113	Organic Chemistry II and Organic Chemistry Laboratory II	4
CHM 332	Analytical Chemistry	3
See Concentrations - Physical chemistry		3-8
CHM 201	Technical Writing [1]	2
CHM 301	Chemistry Seminar [2]	1
CHM 307	Advanced Inorganic Chemistry	3
Collateral Requirement - Path A		
MATH 021	Calculus I	4
MATH 022	Calculus II	4
MATH 023	Calculus III	4
MATH 205	Linear Methods	3
PHY 011 & PHY 012	Introductory Physics I and Introductory Physics Laboratory I	5
PHY 021 & PHY 022	Introductory Physics II and Introductory Physics Laboratory II	5
ENGR 010	Applied Engineering Computer Methods	2
or CSE 002	Fundamentals of Programming	
Specialization Courses		
CHM 334	Advanced Chemistry Laboratory I	3
CHM 335	Advanced Chemistry Laboratory II	3
CHM 341	Molecular Structure, Bonding and Dynamics	3
CHM 342	Thermodynamics & Kinetics	3
CHM 343	Physical Chemistry Laboratory	2
MAT 033	Engineering Materials and Processes	3
Total Credits		**72-77**

B.S. Pharmaceutical Chemistry

College and University Requirements

a. English Composition (2 courses)	6
b. Arts and Humanities	8
c. First Year Seminar (1 course)	1-4
d. Social Sciences	8
Total	**23-26**

Common Core

Select one of the following:		8
CHM 040 & CHM 041	Concepts, Models and Experiments I and II	4
CHM 030 & CHM 031	Introduction to Chemical Principles and Chemical Equilibria in Aqueous Systems	4
CHM 110 & CHM 111	Organic Chemistry I and Laboratory I	4
CHM 112 & CHM 113	Organic Chemistry II and Laboratory II	4
CHM 332	Analytical Chemistry	3
See Concentrations - Physical Chemistry		3-8
CHM 201	Technical Writing [1]	2
CHM 301	Chemistry Seminar [2]	1
CHM 307	Advanced Inorganic Chemistry	3

Collateral Requirement

Select one of the following:		19-28
Path A		
MATH 021	Calculus I	
MATH 022	Calculus II	
MATH 023	Calculus III	
MATH 205	Linear Methods	
PHY 011 & PHY 012	Introductory Physics I and Laboratory I	
PHY 021 & PHY 022	Introductory Physics II and Laboratory II	
ENGR 010	Applied Engineering Computer Methods	
or CSE 002	Fundamentals of Programming	

Path B

MATH 051	Survey of Calculus I	
MATH 052	Survey of Calculus II	
MATH 043	Survey of Linear Algebra	
PHY 010 & PHY 012	General Physics I and Introductory Physics Laboratory I	
PHY 013 & PHY 022	General Physics II and Introductory Physics Laboratory II	

Specialization Courses

Select one of the following:		3
CHM 194	Physical Chemistry for Biological Sciences	
CHM 341	Molecular Structure, Bonding and Dynamics	
CHM 342	Thermodynamics & Kinetics	
CHM 358	Advanced Organic Chemistry	3
CHM 371	Elements of Biochemistry I	1-3
CHM 372	Elements of Biochemistry II	3

Advanced CHM Electives		3
BIOS 041 & BIOS 042	Biology Core I: Cellular and Molecular and Biology Core I: Cellular and Molecular Lab	4
BIOS 115	Biology Core II: Genetics	3
MATH 012	Basic Statistics [3]	4
Total Credits		**79-95**

1. Other writing intensive courses may be substituted with the approval of the advisor but any substitute course should have a science focus.
2. CHM 301 may be substituted by any course having a major presentation component with the approval of the major advisor.
3. MATH 012 may be substituted by any statistics course.